The Impact on Health of Takeaway Fast Food Outlets: Evidence to support the policy in the draft Calderdale Local Plan to restrict the establishment of hot food takeaway outlets within a 400m radius of primary and secondary schools

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Purpose

This report, compiled by the Public Health Intelligence team at Calderdale MBC, provides the latest evidence and insight to support the adoption of a 400 metre perimeter around primary and secondary schools excluding the licensing of new takeaway and fast food establishments.

Background

The draft Local Plan for Calderdale contains a policy preventing the establishment of hot food takeaways (class A5) within 400 metres of a primary or secondary school. The reasoning behind this is concern about the health of young people, and the ease of access to unhealthy food options at lunch time and after school.

In recent years, national policymakers have recognised that individual health behaviour choices are made in the context of the wider social, economic and environmental environment[12], and that as such, tackling obesity requires a multifaceted approach. The 2007 UK government Foresight report "Tackling Obesities: future choices" recognises the complex relations between the factors underlying the development of obesity[3] and remains the most comprehensive investigation into obesity and its causes.[4]

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[4] Public Health England (2014) Healthy people, healthy places briefing: Obesity and the environment: Regulating the growth of fast food outlets

The evidence base

Nutrition and Health

There is clear evidence about the benefits to health of a healthy diet. High levels of salt in the diet are linked to hypertension, and in turn to stroke and coronary heart disease (CHD), while diets high in fat and sugar are strongly linked to obesity, which increases the risk a number of health problems, including type 2 diabetes, stroke, heart disease, and some cancers[5] [6]. A recent study found that, of the risk factors considered for the construction of disability adjusted life years (DALYs), the largest contributor to the burden of ill health was dietary risks.[7] A 2006 World Health Organisation report highlights the importance of healthy nutrition for school-aged children, noting that a healthy diet improves learning outcomes and behaviour[8]. Furthermore, excess weight in childhood is linked with both immediate and long-term health risks[9] and emotional and behavioural problems[10], and may persist into adulthood[11] where the risks to health are well-established.

Health Impacts of Fast Food

Fast food is defined as "easily prepared processed food served in snack bars and restaurants as a quick meal or to be taken away"[12]. The Government's 2007 Foresight Review, *Tackling Obesities: Future Choices*, stresses the negative impact of fast food diets on health, stating that food purchased from fast-food outlets and restaurants can be 65% more "energy-dense" than the average diet[13], supported by a Consumer Focus report which finds that food from fast-food outlets is often high in fat, salt and sugar[14].

There is evidence to suggest a link between the consumption of fast food and obesity, even after controlling for other factors[15][16].

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[7] Newton, J.N., Briggs, A.D.M., Murray, C.J.L. et al (2013) Changes in health in England, with analysis by English regions and areas of deprivation 1990-2013, The Lancet, 386: 2257-2274

[8] WHO (2006) *A tool for the development of school nutrition programmes in the European Regions*

[9] World Health Organization (2014) Obesity and overweight. *Factsheet No 311*. Updated August 2014

[10] Griffiths LJ, Dezateux C, Hill A. (2011) Is obesity associated with emotional and behavioural problems in children? Findings from the Millennium Cohort Study. International Journal of Pediatric Obesity, 6(2-2):e423-32

[11] Singh AS, Mulder C, Twisk JW, van Mechelen W, Chinapaw MJ. (2008) Tracking of childhood overweight into adulthood: a systematic review of the literature. Obes Rev. Sep;9(5):474-88

[12] Oxford Dictionaries (2015) Fast Food, available online from http://www.oxforddictionaries.com/definition/english/fast-food, accessed 8th December 2015

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[14] National Consumer Council. 2008. *Takeaway Health: how takeaway restaurants can affect your chances of a healthy diet*. London: NCC

[15] Thompson et al. (2004) "Food purchased away from home as a predictor of change in BMI Z-score among girls", *International Journal of Obesity*, 28, pp282-289

[16] Jones, A. et al. Obesogenic Environments. Evidence Review. Foresight Tackling Obesities: Future Choices. 2007 Department of Innovation, Universities and Skills. London, England

The role of Physical Activity

While physical activity affords many health benefits, particularly in relation to cardiovascular health, evidence suggests that energy expenditure through physical activity appears to be playing minimal or no role in either causing or moderating the global obesity epidemic.[17][18] A 2011 meta-analysis concluded that there was no association between physical activity and fat mass, stating that "objectively measured physical activity may not be the key determinant of unhealthy weight gain in children".[19]

Importantly, it has been suggested that the public's false perception about obesity being caused by a lack of exercise alone is "rooted in the Food Industry's Public Relations machinery". For example, "Coca Cola, who spent $3.3 billion on advertising in 2013, […] associate their products with sport, suggesting it is ok to consume their drinks as long as you exercise"[20], despite the evidence suggesting otherwise. Furthermore, commentators have drawn parallels between the food industry and tobacco industry[21] suggesting there are "similarities in the actions that these industries have taken in response to concern that their products cause harm". Brownell and Warner (2009) suggest that, like the tobacco industry, the food industry appears to employ a strategy which obscures the reality that some of the most significant health advances have been made by population-based public health approaches. Part of this script, the authors suggest, is a focus on personal responsibility as the cause of the nation's un-healthy diet and emphasising physical activity over diet.

Environmental Influence

There is evidence that the food environment, including the physical accessibility of fast-food outlets, influences the types of food consumed, and may in turn contribute to obesity levels. US studies have found that students who live or go to school in areas with more fast food restaurants and convenience stores than healthier food outlets such as grocery stores are more likely to consume soda and fast food, and consume fewer servings of fruit and vegetables, than teens who live and go to school in areas with healthier food environments[22][23], and are more likely to be overweight or obese[24] [25][26] than students whose schools are not near fast food outlets. There is evidence that

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[17] Luke, A. and Cooper, R.S. (2013) Physical activity does not influence obesity risk: time to clarify the public health message. International Journal of Epidemiology. 42(6), pp.1831-1836.

[18] Wing, R.R. (1999) Physical activity in the treatment of the adulthood overweight and obesity: current evidence and research issues. *Medicine & Science in Sports & Exercise.* 31(11 Suppl), pp.S547-552

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[20] Malhotra, A., Noakes, T. and Phinney, S. (2015) It is time to bust the myth of physical inactivity and obesity: you cannot outrun a bad diet. British Journal of Sports Medicine

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[22] Babey, S. H., Wolstein, J. & Diamant, A. L. (2011) Food environments near home and school related to consumption of soda and fast food. *Policy Brief (Ucla Center for Health Policy Research)***,** 1-8

[23] Fraser et al. (2010) "The Geography of Fast Food Outlets: A Review" in International Journal of Environmental Research and Public Health, 7, pp2290-2308

[24] Key Note (2010) Market Report Plus: Fast-Food and Home Delivery Outlets; Institute of Grocery Distribution (2009) Food To Go Report. IGD, Watford

[25] Davis and Carpenter (2009) "Proximity of fast-food restaurants to schools and adolescent obesity" in American Journal of Public Health, 99:3, pp505-510

[26] Alviola, P.A.T., NAyga, R.M. Thomsen, M.R. et al. (2014) The effect of fast-food restaurants on childhood obesity: a school level analysis. *Economics & Human Biology,* 12**,** 110-9

where there are a large number of fast food outlets in an area there is an association with increase in BMI in children[27], which may be a reflection of an obesogenic environment[2829], with a 2010 systematic review concluding that "limited but consistent evidence suggests that increased geographic density of fast food restaurants and convenience stores is also related to increased BMI"[30]. Evidence for a link between the availability of fast food and childhood obesity led He et al. (2012) to conclude that macro-level regulations and policies are required to amend the health-detracting neighbourhood food environment surrounding children's home and school.[31]

Conversely, some international studies have found there to be little or no relationship between the type of food consumed and the local retail environment, except where other factors are involved[3233]. Buck et al., (2013) found the consumption of unhealthy food not to be influenced by the spatial availability of such food[34], while other studies have found there to be no significant relationship between fast food retailer density around schools and student obesity levels.[3536]

On balance, more of the identified studies support the hypothesis that increased access to fast food establishments around schools is related to sub-optimal dietary intake and childhood obesity.

Fast Food and Schools

Schools are important environments in shaping the eating habits of young people.[37] A 2008 report[38] notes that shops and fast food outlets near schools, and particularly those at the beginning or end of

[27] Chiang, P. H., Wahlqvist, M. L., Lee, M. S., Huang, L. Y., Chen, H. H. & Huang, S. T. (2011) Fast-food outlets and walkability in school neighbourhoods predict fatness in boys and height in girls: a Taiwanese population study. *Public Health Nutrition,* 14**,** 1601-9

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[32] Simmons D et al. Choice and availability of takeaway and restaurant food is not related to the prevalence of adult obesity in rural communities in Australia. International Journal of Obesity and Related Metabolic Disorders 2012;29(6):703-10

[33] Burdette HL, Whitaker RC. Neighborhood playgrounds, fast food restaurants, and crime: relationships to overweight in low-income preschool children. Preventative Medicine 2004;38(1):57-63

[34] Buck, C., Bornhorst, C., Pohlabeln, H., Huybrechts, I., et al. (2013) Clustering of unhealthy food around German schools and its influence on dietary behavior in school children: a pilot study. *International Journal of Behavioral Nutrition & Physical Activity,* 10**,** 65

[35] Seliske, L. M., Pickett, W., Boyche, W. F. et al. (2009) Association between the food retail environment surrounding schools and overweight in Canadian youth. *Public Health Nutrition,* 12**,** 1384-91

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[37] Ludvigsen, A. and Sharma, N. Burger Boy and Sporty Girl: children and young people's attitudes towards food in school. 2004 Barnardo's. Ilford, Essex

the journey to school to be the most common source of food during the school day, concluding that such outlets in close proximity to schools presented an obstacle to secondary school children's likelihood to eat healthily. Further, a study examining the relationship between fast food consumption and childhood obesity in a deprived Inner London Borough concludes that actions should be taken either to limit the ability of children to access fast foods, or to change the foods they purchased at fast food outlets[39].

Health inequalities

There is evidence that the availability of high quality, affordable and nutritious food, and in particular fresh produce, is worse in deprived areas, leading to the creation of so-called "food-deserts"[40], resulting in an over-reliance on low cost energy-dense alternatives[41] likely to contribute to increased prevalence of other health problems, while research suggests that overweight and obesity are more prevalent among people living in deprived areas[42]. Nationally, child obesity prevalence in the most deprived decile is approximately twice that in the least deprived[43]. A 2008 study finds that ""while the quality of the retail food environment affects food choice and eating behaviours among both high and low socio-economic status populations, the economic (and perhaps social and cultural) resources available to those of higher socioeconomic status have a protective effect on eating patterns"[44]. Fast food outlets are often located in areas of higher deprivation, with the National Obesity Observatory (NOO) finding a strong association between the two[45]. Further, a recent UK study finds low income and high exposure to fast food outlets to be systematically associated with higher levels of obesity[46]. Evidence suggests that the number of fast food outlets in deprived areas has increased substantially in the past two decades[47], while a recent Public Health England publication suggests that regulating fast food outlets and improving access to healthier food in deprived communities may contribute to reducing health inequalities[48].

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[38] Sinclair, S. and Winkler, J. (2008) *The School Fringe: What pupils buy and eat from shops surrounding secondary schools*, Nutrition Policy Unit, London Metropolitan University, July 2008

[39] Patterson R, Risby A, Chan M-Y. Consumption of takeaway and fast food in a deprived inner London Borough: are they associated with childhood obesity? BMJ Open 2012

[40] Geddes, I. et al. The Marmot Review: implications for spatial planning. 2011 Marmot Review Team for NICE. London

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[42] Public Health England (2014). *Adult obesity and socioeconomic status*, Data Factsheet

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[47] Maguire ER et al. (2015) "Area deprivation and the food environment over time: a repeated cross-sectional study on takeaway outlet density and supermarket presence in Norfolk, UK, 1990 – 2008". *Health & Place*; 2 April 2015

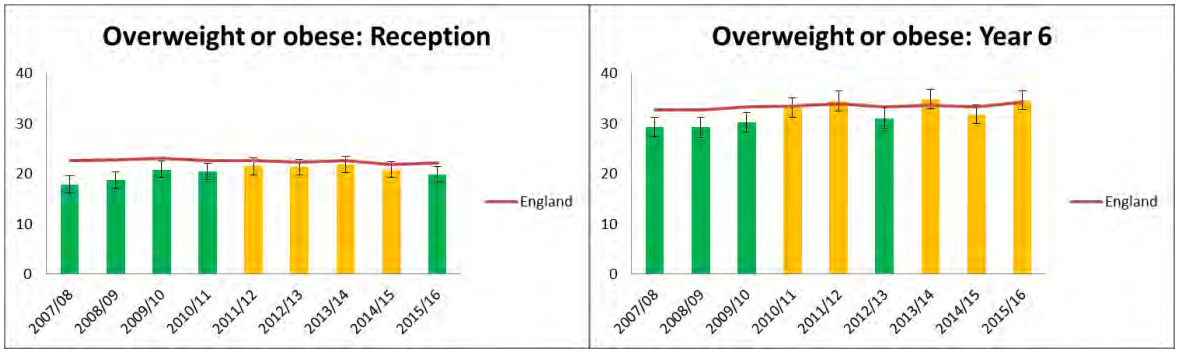
[48] Public Health England (20414) *Obesity and the environment briefing: regulating the growth of fast food outlet*

Local context

Excess Weight

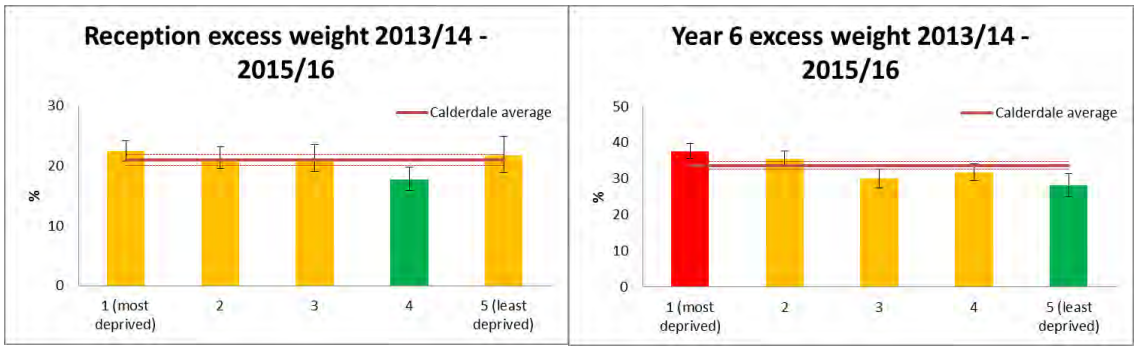
In Calderdale, two thirds (64.5%) of adults are overweight or obese. This is similar to the national average of 64.8%[49]. GP recorded obesity prevalence in adults is 11.0%, higher than the England average of 9.5%[50]. At age 4/5, around a fifth[51] (19.8%) of children in Calderdale are overweight or obese, rising to over a third[52] (34.6%) by age 10/11. While in line with regional and national levels, trends in childhood excess weight in Calderdale do not reflect national ambition to achieve "a sustained downward trend in the level of excess weight in children by 2020"[53].

FIG. 1: EXCESS WEIGHT (OVERWEIGHT OR OBESE) IN CHILDREN IN CALDERDALE



Childhood excess weight varies across Calderdale by level of residential deprivation, with excess weight at Year 6 significantly higher in the most deprived areas than in the least deprived areas[54]. The same pattern is not evidenced in Reception-aged pupils, suggesting that external factors between the ages of 4/5 (Reception) and 10/11 (Year 6) influence children's diet. See Figure 2, below.

FIG. 2: EXCESS WEIGHT (OVERWEIGHT OR OBESE) IN CHILDREN IN CALDERDALE BY DEPRIVATION



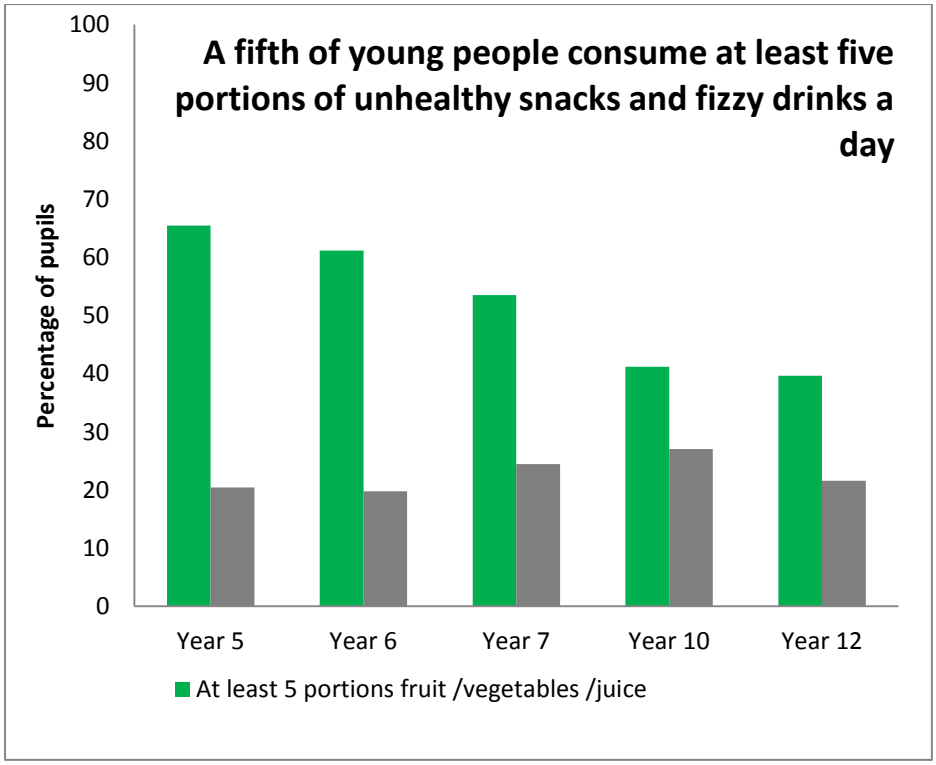
[49] PHE, Public Health Outcomes Framework indicator 2.12, 2012
[50] PHE, Diabetes Profile, 2013/14
[51] PHE, Public Health Outcomes Framework indicator 2.06i, 2013/14
[52] PHE, Public Health Outcomes Framework indicator 2.06ii, 2013/14
[53] Department of Health (2011) Healthy Lives, Healthy People: A call to action on obesity in England, London
[54] As defined by Index of Multiple Deprivation (IMD) national quintiles

Diet

Latest PHE estimates suggest that 52.4% of Calderdale residents consume five or more portions of fruit and vegetables a day, compared to an England average of 52.3%[55].

On average, around half of young people[56] in Calderdale report eating at least five portions of fruit and vegetables a day, while one in five has at least five packets of unhealthy snacks or fizzy drinks every day. This varies by age, with just 40% of pupils in Years 10 and 12 reporting that they consume at least five portions of fruit and vegetables a day[57]. Nationally, 11% of boys and 8% of girls aged 11 to 18 meet the 5-a-day recommendation[58].

FIG. 3: YOUNG PEOPLE AND FOOD

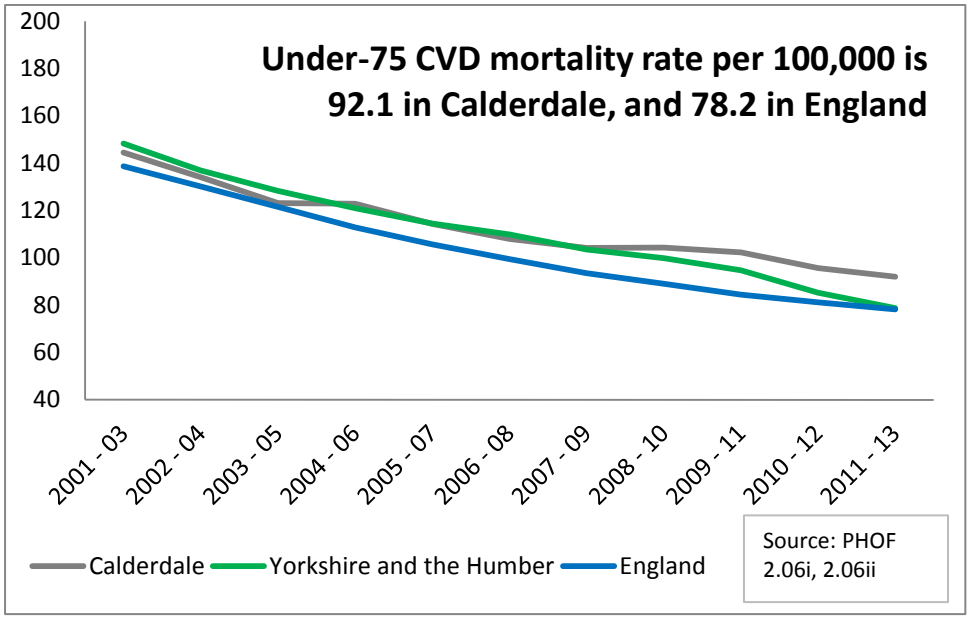


Morbidity and Mortality

Premature mortality from CVD is significantly higher in Calderdale than in England as a whole, with an under-75 CVD mortality rate of 92.1 deaths per 100,000 (DSR) in Calderdale, compared to 87.3 in Yorkshire & Humber, and 78.2 in England. This equates to 472 premature deaths from 2011-2013. Of these, 303 deaths were deemed to be preventable – a significantly higher rate than the England average[59]. While falling year-on-year in line with national trends, the under-75s CVD mortality rate in Calderdale has remained significantly higher than the England average since 2007-09.

[55] PHE, Public Health Outcomes Framework indicator 2.11i, 2015
[56] Calderdale eHNA pupil survey (young people in school years 5, 6, 7, 10 and 12).
[57] Calderdale Metropolitan Borough Council (2014) Electronic Health Needs Assessment schools survey
[58] DoH (2014) National Diet and Nutrition Survey Headline results from Years 1, 2 and 3 (combined) of the Rolling Programme (2008/2009 – 2010/11)
[59] PHE, Public Health Outcomes Framework indicator 4.04ii, 2011-2013

FIG. 4: CVD PREMATURE MORTALITY



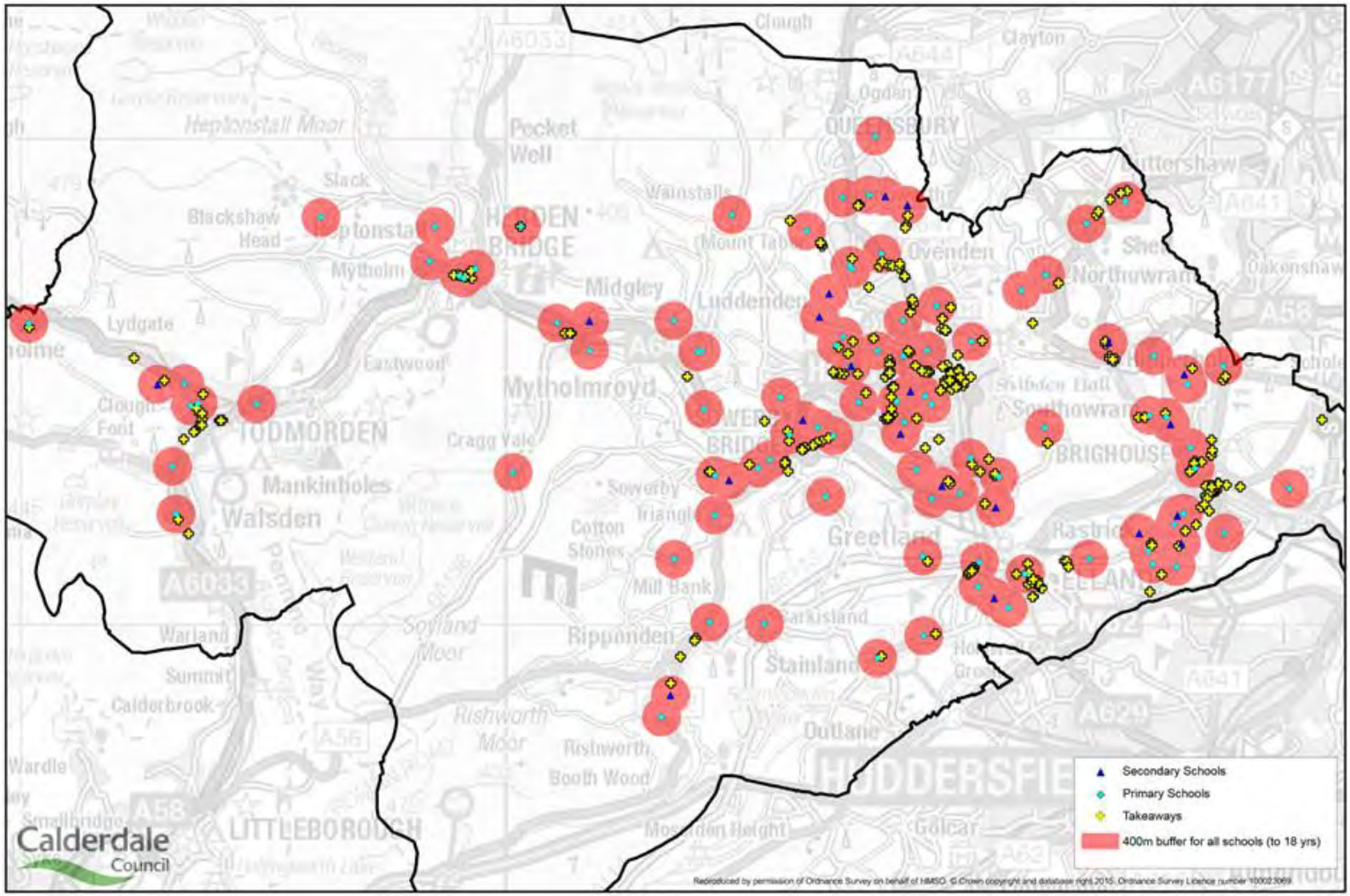
Emergency hospital admission rates in for CHD are three times higher for residents living in Calderdale's most deprived neighbourhoods than they are for those in the least deprived neighbourhoods, while emergency admissions for heart failure are twice as high[60]. Mortality rates from circulatory disease are substantially higher in the most deprived parts of Calderdale than in the least deprived areas[61].

Fast Food Outlets

Calderdale has an estimated 218 fast-food outlets excluding restaurants that provide takeaway food[62]. According to recent analysis conducted for Public Health England, Calderdale falls within the top 10 per cent of Local Authorities in England for high density of fast food outlets[63]. Figure 5, below shows the location of fast-food outlets and schools across Calderdale, with the red shaded area representing a 400 metre buffer – approximately a 10 minute walk – around each school. The majority of schools (73 out of 109, or 67%) are within a 10 minute walk of a takeaway. For comparison, in Tower Hamlets, where fast food outlets around schools are now subject to planning restrictions, around 90% of schools are within a 10 minute walk of a fast food outlet[64]. However, it should be noted that Tower Hamlets is a densely populated inner city area. Excluding Calderdale schools that are in rural areas would elevate the local figure to one much closer to that in Tower Hamlets.

[60] SUS data, calculated by CMBC, 2011/12
[61] PCMD data, calculated by CMBC, 2009-2011
[62] PHE (2016) Density of fast food outlets in England, http://www.noo.org.uk/visualisation [acecssed 8th February 2017]
[63] Ibid
[64] NHS Tower Hamlets (2011) tackling the takeaways: a new policy to address fast-food outlets in Tower Hamlets, available from: http://www.towerhamlets.gov.uk/idoc.ashx?docid=2b285be6-9943-4fec-a762-76c93d07ca50&version=-1 [accessed 8th December 2015]

FIG. 5. LOCATIONS OF FAST FOOD OUTLETS AND SCHOOLS



The maps below show fast-food outlet concentration (Figure 6), childhood excess weight prevalence (Figure 7), and area-deprivation (Figure 8) respectively. Together, the maps reveal that many of the areas with high fast food outlet concentration are also those where prevalence of child excess weight and the level of deprivation are highest.

FIG. 6: FAST FOOD OUTLET CONCENTRATION BY WARD (Public Health England, 2016)

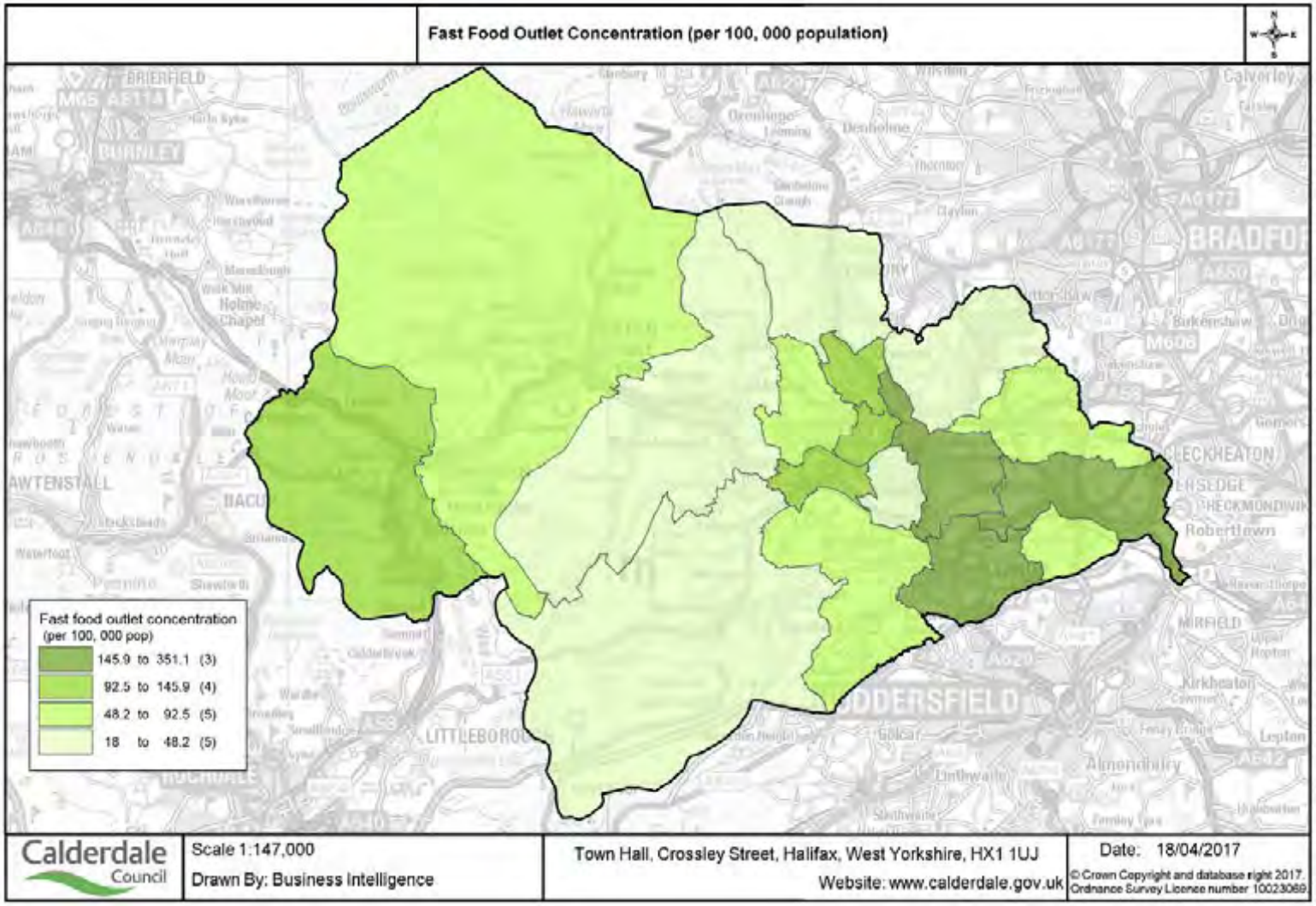


FIG. 7 EXCESS WEIGHT PREVALENCE IN Y6 2013/14 TO 2015/16 BY WARD

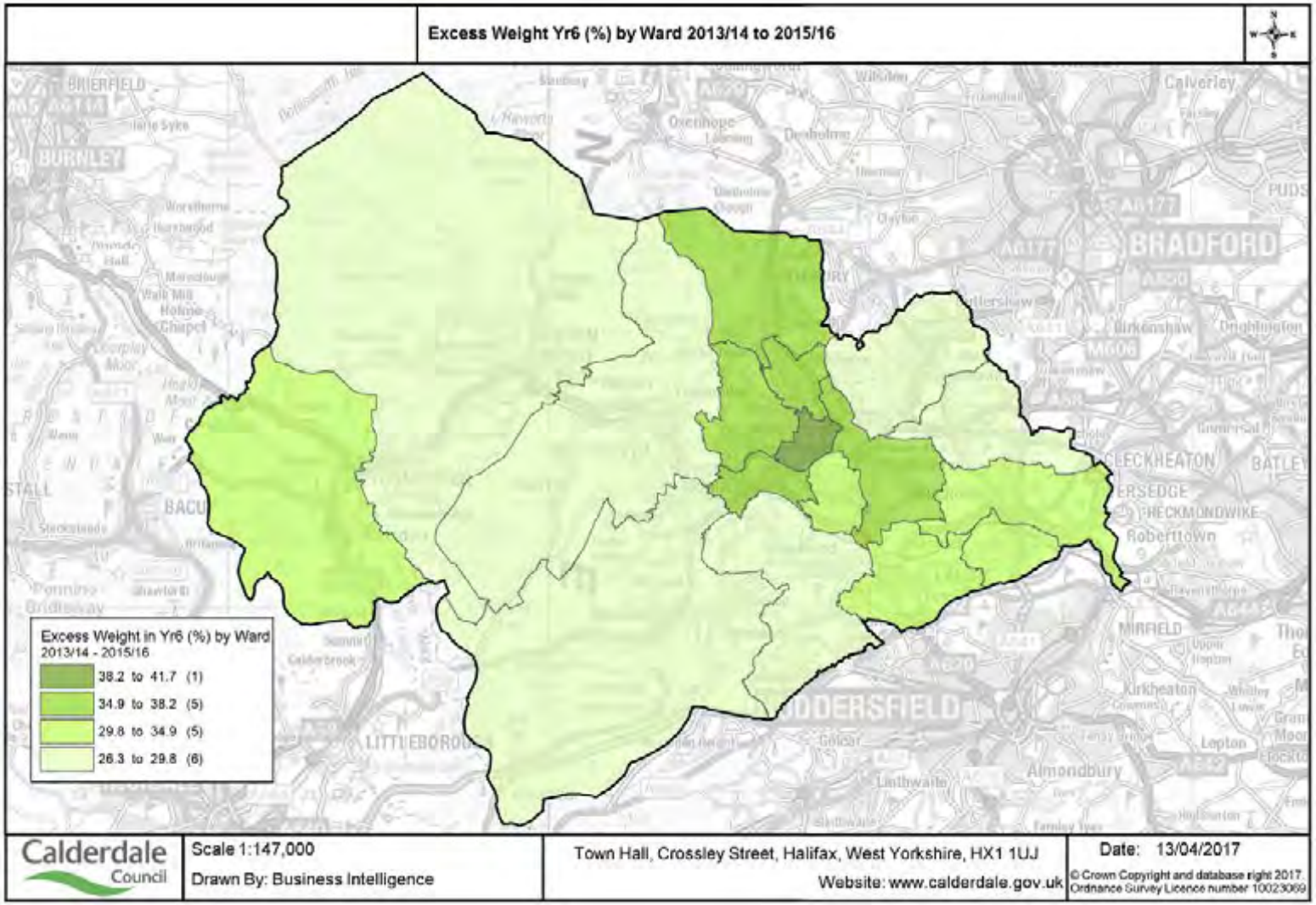
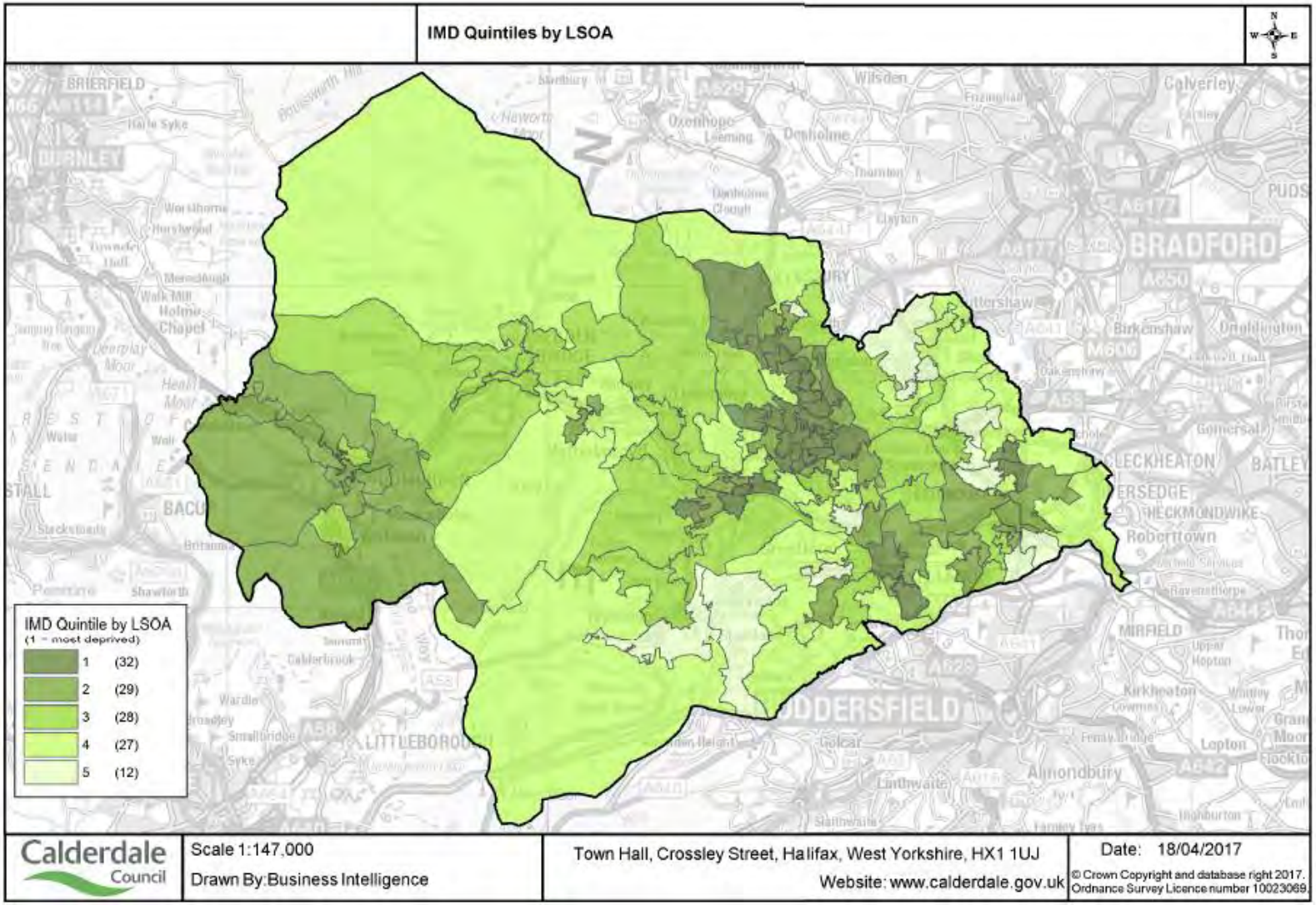


FIG. 8 IMD 2015 QUINTILES BY LSOA



Policy Context

The Government's Healthy Lives, Healthy People 2010 Public Health White Paper recognises that "health considerations are an important part of planning policy"[65] echoing recommendations made in the 2010 Marmot Review[66], and explicitly addresses the potential for local authorities to influence the concentration of fast food outlets. The National Planning Policy Framework (2012) also makes explicit the responsibility that local planning authorities have to promote healthy communities, stating that planning should "take account of and support local strategies to improve health, social and cultural wellbeing for all"[67]. The role of local authorities is reiterated by Public Health England's assertion that "Local authorities have a range of legislative and policy levers at their disposal, alongside wider influences on healthy lifestyles that can help to create places where people are supported to maintain a healthy weight"[68]. Furthermore, clinical guidance on the prevention of cardiovascular disease and Type 2 diabetes recommends that local planning authorities regulate the number of takeaways and other food retail outlets in specific areas, including those within walking distance of schools[69]

Achieving good health is a strategic priority for Calderdale, as set out in a number of policy and strategy documents. For example:

- The Calderdale Health and Wellbeing Board Joint Wellbeing Strategy 2012-2022 states that "**fewer people will smoke, drink too much alcohol and more people will eat healthily**" and that "**we are seeking to develop an environment conducive to good health**"[70];
- The NHS Calderdale CCG Sustainable Development Management Plan 2015-2016 includes the following goal: **"every opportunity contributes to healthy lives, healthy communities and healthy environments"**. The plan references the importance preventative work around transforming the food culture of schools as a way of supporting this goal[71].
  The Calderdale Clinical Commissioning Group (CCG) 5-Year Strategic Plan (2014/15-2018/19) includes a number of objectives that may be in conflict with planning policy that allows an increase in fast food outlets around schools. For example, the explicit aim to reduce inequalities may be compromised by the further proliferation of fast food outlets around schools in areas of deprivation[72].

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[65] Department of Health (2010) Healthy Lives, Healthy People: Our Strategy for Public Health in England. Department of Health, London

[66] Marmot (2010) *Fair Society, Healthy Lives – The Marmot Review: Strategic Review of Health Inequalities in England post- 2010*, The Marmot Review, London

[67] CLG (2012) National Planning Policy Framework, Department for Communities and Local Government, London

[68] Public Health England (2014) Healthy people, healthy places briefing: Obesity and the environment: Regulating the growth of fast food outlets

[69] NICE, Prevention of cardiovascular disease at population level PH25 (June 2010) and Preventing Type 2 diabetes - population and community interventions PH35 (May 2011)

[70] Calderdale Health and Wellbeing Board, 2013, Calderdale's Joint Wellbeing Strategy 2012-2012

[71] NHS Calderdale CCG (2015) Sustainable Development Management Plan 2015-16, available from http://www.calderdaleccg.nhs.uk/wp-content/uploads/2013/03/Sustainable-Development-Management-Plan-2015.pdf [accessed 27th January 2016]

[72] NHS Calderdale CCG 5-Year Strategic Plan 014/15-2018/19, available from http://www.calderdaleccg.nhs.uk/wp-content/uploads/2013/03/CCCG-5-Year-Strat-V21-1.pdf [accessed 27th January 2016]

- The CMBC Children and Young People's Partnership Strategic Planning Framework (2011-15) includes the following priority: **"Working together we will ensure that children and young people in Calderdale Start healthy and stay healthy".** The specific objectives that underpin this priority include: "**Reduce the number of children aged 5-10 who are obese"** and "**Improve the health and wellbeing of the most vulnerable and deprived"[73].**

The evidence presented in this review suggests that a planning policy which restricts fast food outlets around schools may support these aims. Furthermore, the continued spread of fast food outlets risks compromising Public Health initiatives to promote healthy lifestyles among young people, such as the Food for Life Partnership, a programme commissioned jointly by the Authority and CCG, which aims to empower children and young people to make good food choices.

Conclusions

Evidence suggests that the accessibility of fast-food outlets influences the types of food consumed, and may in turn contribute to obesity levels. In recent years, there has been a significant increase in the number of Local Authorities restricting the opening of fast food outlets in close proximity to schools due to increasing concerns about the links between these establishments and poor nutrition. However, while restricting applications for hot-food takeaways may improve the local food environment, it is important to note that some such establishments may offer healthy alternatives. Similarly, establishments not classified as hot food takeaways may offer unhealthy foods. Furthermore, the availability of fast food is not the only factor influencing diet and obesity. However, a growing body of evidence has highlighted that environmental factors are a driving force behind rising levels of obesity[74][75][76], thus should be given careful consideration as part of an integrated approach to managing obesity in Calderdale. While the proximity of fast food outlets to schools is not the only factor leading to childhood obesity, the proximity of such outlets is likely to lead to increased intake of foods that contribute to the long-term health conditions and poor health outcomes described above.

Based on the review of evidence presented above, and on good-practice, the Calderdale Public Health Intelligence team recommend that there should be a restriction in the establishment of new hot fast-food outlets in close proximity to primary and secondary schools in the District. However, due to limitations in the scientific evidence available, caution should be exercised and the impact of this restriction should be monitored on a regular basis.

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